

***Remarks***

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 1 and 3-16 are pending in the application, with 1, 9, 12, 14, and 15 being the independent claims. Claim 2 was previously cancelled. Claims 4, 9, 10, 13, and 16 are sought to be amended. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendment and the following remarks, Applicant respectfully requests that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

***Allowable Subject Matter***

Applicant acknowledges with appreciation the Examiner's indication that claims 4, 10, 13, and 16 would be allowable if rewritten to overcome the rejection under 35 U.S.C. § 112, second paragraph, and to include all of the limitations of the base claim and any intervening claims.

***Rejections under 35 U.S.C. § 112***

Claims 4, 10, 13, and 16 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Examiner stated that the "[r]ange of variable j is not defined in claim or specification."

Claims 4, 10, 13, and 16 have been amended to further recite "wherein j is a frame within a sequence of frames." Support for this amendment may be found at least on p. 6, lines 1-33 and p. 7, lines 1-7 of the specification.

Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 4, 10, 13, and 16.

***Rejections under 35 U.S.C. § 103***

Claims 1, 3, 6-9, 12, 14, and 15 were rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 6,807,234 to Hansen (hereinafter Hansen). Applicant respectfully traverses this rejection.

To establish a prima facie case of obviousness, three criteria must be met. First, some suggestion or motivation must exist in the reference or in the knowledge generally available to one ordinary skilled in the art to modify the reference. *In re Vaeck*, 947 F.2d 488, 493 (Fed. Cir. 1991). Second, the reference must reveal a reasonable expectation of success. *Id.* Finally, the reference must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981 (CCPA 1974).

Hansen does not teach or suggest each and every limitation of Applicant's independent claims 1, 9, 12, 14, and 15. In rejecting the claims, the Examiner stated:

Hansen is silent with respect to permutation of data. It would have been obvious to one in ordinary skill in the art at the time of invention that the Hansen's combination of scrambler and interleaver would result in a permutation of data.

Assuming arguendo that the combination of scrambler and interleaver results in a permutation of data, nowhere does Hansen teach or suggest "wherein a permutation mapping the bits of each frame to each of the discrete tones cycles through a sequence of different permutations in successive frames, wherein a bit in a frame bit position is mapped to a different discrete tone in a plurality of successive frame assignments," as recited in independent claims 1, 9, and 15; "mapping the bits of each frame to the discrete tones by cycling through a predetermined sequence of different permutations in

successive frames," as recited by independent claim 12; and "each discrete tone is allocated a respective number of bits, the allocation of bits to discrete tones cycles through the predetermined sequence of different permutations," as recited in independent claim 14.

As pointed out in Applicant's Amendment and reply filed October 31, 2005, Hansen states that:

. . . binary streams can be scrambled and forward-error corrected by the scrambler and FEC units 22, 28, 24 using suitable methods and techniques, such as those that are known in the art . . . details of scrambling techniques and Reed-Solomon forward error correction can be found in International Telecommunication Union - Telecommunication Standardization Sector, 'Draft Recommendation: **G.992.2** - Splitterless Asymmetric Digital Subscriber Line (ADSL) Transceivers.

Hansen, col. 3, lines 31-42 (emphasis added). Applicant's claimed invention overcomes the limitations of scrambling and interleaving as defined in the G.992 recommendation. Specifically, the specification states "the bits of the frame are scrambled and interleaved in successive frames so that each bit of the frame is not, as in the present standard G.992, always assigned to the same tone but is assigned to different tones in different frames." Specification, p. 3, lines 7-10.

For at least these reasons, independent claims 1, 9, 12, 14, and 15 are patentable over Hansen. Claims 3 and 6-8 depend from claim 1 and are thus patentable over Hansen for at least the reasons provided above, and further view of their own features. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 1, 3, 6-9, 12, 14, and 15.

#### **Claims 5 and 11**

Applicant notes that the Office Action summary indicates that claims 5 and 11 were rejected. However, the detailed action did not include a specific rejection for these

claims. Claims 5 and 11 depend from claim 1 and are thus patentable over Hansen for at least the reasons provided above, and further view of their own features.

### *Conclusion*

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicant believes that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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